

## CLAIMS

1. A method, comprising:

receiving audio content from one or more sources;

providing an audio content component for each source of audio content,  
each audio content component generating event instructions from the received  
audio content;

processing the event instructions to produce audio instructions;

providing one or more audio rendition managers, each audio rendition  
manager corresponding to an audio rendition; and

routing the audio instructions to the one or more audio rendition managers,  
wherein the audio rendition managers process the audio instructions to render the  
corresponding audio renditions.

2. A method as recited in claim 1, wherein each audio content  
component is a component object having an interface that is callable by a software  
component, the software component directing said generating the event  
instructions.

3. A method as recited in claim 1, wherein each audio rendition  
manager is a component object having an interface that is callable by a software  
component, the software component performing said routing the audio instructions  
to the one or more audio rendition managers.

1           4. A method as recited in claim 1, further comprising providing a  
2 software component, wherein each audio content component is a component  
3 object having an interface that is callable by the software component, the software  
4 component directing said generating the event instructions, and wherein each  
5 audio rendition manager is a component object having an interface that is callable  
6 by the software component, the software component performing said routing the  
7 audio instructions to the one or more audio rendition managers.

8  
9           5. A method as recited in claim 1, further comprising providing a  
10 performance manager that performs said providing an audio content component  
11 for each source of audio content, and performs said providing the one or more  
12 audio rendition managers.

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14           6. A method as recited in claim 1, the method further comprising  
15 providing a performance manager as a component object that performs said  
16 providing an audio content component for each source of audio content, and  
17 performs said providing the one or more audio rendition managers.

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19           7. A method as recited in claim 1, further comprising providing a  
20 performance manager as a component object, wherein each audio content  
21 component is a component object having an interface that is callable by the  
22 performance manager, the performance manager directing said generating the  
23 event instructions, and wherein each audio rendition manager is a component  
24 object having an interface that is callable by the performance manager, the  
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1 performance manager performing said routing the audio instructions to the one or  
2 more audio rendition managers.

3  
4 **8.** A method as recited in claim 1, further comprising providing a  
5 performance manager that performs said receiving the audio content, providing an  
6 audio content component for each source of audio content, processing the event  
7 instructions, and routing the audio instructions.

8  
9 **9.** A method as recited in claim 1, further comprising providing a  
10 performance manager that performs said receiving the audio content, providing an  
11 audio content component for each source of audio content, processing the event  
12 instructions, providing the one or more audio rendition managers, and routing the  
13 audio instructions.

14  
15 **10.** A method as recited in claim 1, wherein the audio content includes  
16 digital audio samples.

17  
18 **11.** A method as recited in claim 1, wherein the audio content includes  
19 MIDI data.

20  
21 **12.** A method as recited in claim 1, wherein each audio content  
22 component has one or more event instruction components that perform said  
23 generating the event instructions.

1           **13.**   A method as recited in claim 1, wherein each audio content  
2 component has one or more event instruction components that perform said  
3 generating the event instructions, each event instruction component corresponding  
4 to part of the received audio content.

5  
6           **14.**   A method as recited in claim 1, further comprising each audio  
7 content component generating event instructions and routing the event instructions  
8 to the one or more audio rendition managers before said processing the event  
9 instructions.

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11           **15.**   A method as recited in claim 1, further comprising a particular audio  
12 content component generating event instructions, said processing the event  
13 instructions to produce audio instructions, and routing the audio instructions  
14 resulting from the particular audio content component to the one or more audio  
15 rendition managers.

16  
17           **16.**   A method as recited in claim 1, wherein the one or more audio  
18 rendition managers receive audio instructions originating as event instructions  
19 from one or more of the audio content components.

20  
21           **17.**   A method as recited in claim 1, wherein one audio rendition  
22 manager receives audio instructions originating as event instructions from one or  
23 more of the audio content components.

1           **18.**    A method as recited in claim 1, wherein said providing an audio  
2 rendition manager comprises providing a synthesizer component, the method  
3 further comprising processing the audio instructions with the synthesizer  
4 component to render the corresponding audio rendition.

5  
6           **19.**    A method as recited in claim 1, wherein said providing an audio  
7 rendition manager comprises providing a synthesizer component and audio wave  
8 data consumers, the method further comprising processing the audio instructions  
9 with the synthesizer component to generate audio wave data, and routing the audio  
10 wave data to the audio wave data consumers.

11  
12           **20.**    A method as recited in claim 1, wherein said providing an audio  
13 rendition manager comprises:

14               providing a synthesizer component;

15               providing audio wave data consumers;

16               defining logical buses that each correspond to one of the audio wave data  
17 consumers;

18               the method further comprising:

19                     processing the audio instructions with the synthesizer component to  
20 generate multiple streams of audio wave data;

21                     assigning each of the multiple streams of audio wave data to one or  
22 more of the logical buses; and

23                     routing audio wave data streams assigned to a particular logical bus  
24 to the audio wave data consumer corresponding to said particular logical  
25 bus.

1  
2       **21.**    A method as recited in claim 1, wherein said providing an audio  
3 rendition manager comprises:

4           providing a synthesizer component having multiple channel groups, each  
5 channel group having a plurality of synthesizer channels to receive the audio  
6 instructions;

7           providing a mapping component having mapping channels corresponding  
8 to the plurality of synthesizer channels;

9           providing audio wave data consumers;

10          defining logical buses that each correspond to one of the audio wave data  
11 consumers;

12          the method further comprising:

13                assigning the mapping channels to receive the audio instructions;

14                routing the audio instructions to a particular synthesizer channel in  
15 accordance with the mapping channel assignments;

16                processing the audio instructions with the synthesizer component to  
17 generate multiple streams of audio wave data;

18                assigning each of the multiple streams of audio wave data to one or  
19 more of the logical buses; and

20                routing audio wave data streams assigned to a particular logical bus  
21 to the audio wave data consumer corresponding to said particular logical  
22 bus.  
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2       **22.** One or more computer-readable media comprising computer-  
3 executable instructions that, when executed, direct a computing system to perform  
4 the method of claim 1.

5  
6       **23.** One or more computer-readable media comprising computer-  
7 executable instructions that, when executed, direct a computing system to perform  
8 the method of claim 7.

9  
10       **24.** One or more computer-readable media comprising computer-  
11 executable instructions that, when executed, direct a computing system to perform  
12 the method of claim 20.

13  
14       **25.** One or more computer-readable media comprising computer-  
15 executable instructions that, when executed, direct a computing system to perform  
16 the method of claim 21.

1       **26.**     A method, comprising:

2       providing a performance manager that performs acts comprising:

3             receiving audio content from one or more sources;

4             providing an audio content component for each source of audio  
5       content, each audio content component generating event instructions from  
6       the received audio content;

7             processing the event instructions to produce audio instructions;

8             providing one or more audio rendition managers, each audio rendition  
9       manager corresponding to an audio rendition, and each audio rendition manager  
10      performing acts comprising:

11            providing a synthesizer component that receives the audio  
12      instructions and generates audio wave data;

13            providing one or more audio wave data consumers that process the  
14      audio wave data; and

15            routing the audio wave data to render the corresponding audio  
16      renditions.

17  
18       **27.**     A method as recited in claim 26, wherein the performance manager  
19      is a component object having an interface that is callable by a software  
20      component.

21  
22       **28.**     A method as recited in claim 26, wherein the performance manager  
23      is a component object, and wherein each audio content component is a component  
24      object having an interface that is callable by the performance manager, the  
25      performance manager directing said generating the event instructions.



1  
2       **29.**    A method as recited in claim 26, wherein each audio rendition  
3 manager is a component object having an interface that is callable by a software  
4 component.

5  
6       **30.**    A method as recited in claim 26, wherein the performance manager  
7 is a component object, and wherein each audio rendition manager is a  
8 programming object having an interface that is callable by the performance  
9 manager.

10  
11       **31.**    A method as recited in claim 26, wherein the performance manager  
12 is a component object that performs said providing the one or more audio  
13 rendition managers, and wherein each audio rendition manager is a component  
14 object having an interface that is callable by the performance manager.

15  
16       **32.**    A method as recited in claim 26, wherein the audio content includes  
17 digital audio samples.

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19       **33.**    A method as recited in claim 26, wherein the audio content includes  
20 MIDI data.

21  
22       **34.**    A method as recited in claim 26, wherein each audio content  
23 component has one or more event instruction components that perform said  
24 generating the event instructions.

1           **35.**    A method as recited in claim 26, wherein each audio content  
2 component is a component object having an interface that is callable by the  
3 performance manager, and wherein each audio content component has one or  
4 more event instruction components that are component objects having an interface  
5 that is callable by the audio content component, the one or more event instruction  
6 components performing said generating the event instructions.

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8           **36.**    A method as recited in claim 26, further comprising each audio  
9 content component generating event instructions, and routing the event  
10 instructions to the one or more audio rendition managers before said processing  
11 the event instructions.

12  
13           **37.**    A method as recited in claim 26, further comprising a particular  
14 audio content component generating event instructions, said processing the event  
15 instructions to produce audio instructions, and routing the audio instructions  
16 resulting from the particular audio content component to the one or more audio  
17 rendition managers.

18  
19           **38.**    A method as recited in claim 26, wherein the one or more audio  
20 rendition managers receive audio instructions originating as event instructions  
21 from one or more of the audio content components.

22  
23           **39.**    A method as recited in claim 26, wherein one audio rendition  
24 manager receives audio instructions originating as event instructions from one or  
25 more of the audio content components.

1  
2       **40.**    A method as recited in claim 26, wherein the synthesizer component  
3 is a component object having an interface that is callable by a software  
4 component.

5  
6       **41.**    A method as recited in claim 26, wherein each audio rendition  
7 manager is a component object, and wherein the synthesizer component is a  
8 component object having an interface that is callable by the audio rendition  
9 manager providing the synthesizer component.

10  
11       **42.**    A method as recited in claim 26, wherein the one or more audio  
12 wave data consumers are audio buffers provided as component objects, each audio  
13 buffer having an interface that is callable by a software component.

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15       **43.**    A method as recited in claim 26, wherein each audio rendition  
16 manager is a component object, and wherein the one or more audio wave data  
17 consumers are audio buffers provided as component objects, each audio buffer  
18 having an interface that is callable by the audio rendition manager providing the  
19 audio buffer.

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1           **44.**    A method as recited in claim 26, wherein each audio rendition  
2 manager performs acts further comprising:

3            defining logical buses that each correspond to one of the audio wave data  
4 consumers;

5            assigning the audio wave data to one or more of the logical buses; and

6            routing the audio wave data assigned to a particular logical bus to the audio  
7 wave data consumer corresponding to said particular logical bus.

8  
9           **45.**    A method as recited in claim 26, wherein said providing a  
10 synthesizer component comprises providing the synthesizer component with  
11 multiple channel groups, each channel group having a plurality of synthesizer  
12 channels that receive the audio instructions, and wherein each audio rendition  
13 manager performs acts further comprising:

14           providing a mapping component having mapping channels corresponding  
15 to the plurality of synthesizer channels;

16           assigning the mapping channels to receive the audio instructions;

17           routing the audio instructions to the synthesizer channels in accordance  
18 with the mapping channel assignments;

19           defining logical buses that each correspond to one of the audio wave data  
20 consumers;

21           assigning the audio wave data to one or more of the logical buses; and

22           routing the audio wave data assigned to a particular logical bus to the audio  
23 wave data consumer corresponding to said particular logical bus.

1  
2       **46.** One or more computer-readable media comprising computer-  
3 executable instructions that, when executed, direct a computing system to perform  
4 the method of claim 26.

5  
6       **47.** One or more computer-readable media comprising computer-  
7 executable instructions that, when executed, direct a computing system to perform  
8 the method of claim 31.

9  
10       **48.** One or more computer-readable media comprising computer-  
11 executable instructions that, when executed, direct a computing system to perform  
12 the method of claim 45.

13  
14       **49.** An audio generation system, comprising:  
15       a performance manager having an audio content component that generates  
16 event instructions from audio content received from one or more sources, the  
17 performance manager configured to process the event instructions to produce  
18 audio instructions; and

19       an audio rendition manager that corresponds to an audio rendition, the  
20 audio rendition manager configured to receive the audio instructions and process  
21 the audio instructions to render the corresponding audio rendition.

1           **50.**    An audio generation system as recited in claim 49, further  
2 comprising a second audio rendition manager that corresponds to a second audio  
3 rendition, the second audio rendition manager configured to receive the audio  
4 instructions and process the audio instructions to render the corresponding second  
5 audio rendition.

6  
7           **51.**    An audio generation system as recited in claim 49, further  
8 comprising a second audio rendition manager that corresponds to a second audio  
9 rendition, the second audio rendition manager configured to receive the audio  
10 instructions and process the audio instructions to render the corresponding second  
11 audio rendition, wherein the audio rendition and the second audio rendition are  
12 rendered together.

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14           **52.**    An audio generation system as recited in claim 49, wherein the  
15 performance manager is a component object having an interface that is callable by  
16 a software component.

17  
18           **53.**    An audio generation system as recited in claim 49, wherein the  
19 audio rendition manager is a component object having an interface that is callable  
20 by a software component.

21  
22           **54.**    An audio generation system as recited in claim 49, wherein the  
23 performance manager is a component object, and wherein the audio content  
24 component is a component object having an interface that is callable by the  
25 performance manager.

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2       **55.**    An audio generation system as recited in claim 49, wherein the  
3 performance manager is a component object, and wherein the audio rendition  
4 manager is a component object provided by the performance manager, the audio  
5 rendition manager having an interface that is callable by the performance manager.  
6

7       **56.**    An audio generation system as recited in claim 49, wherein the  
8 audio rendition manager comprises a synthesizer component configured to process  
9 the audio instructions to generate audio wave data.  
10

11       **57.**    An audio generation system as recited in claim 49, wherein the  
12 audio rendition manager comprises a synthesizer component configured to process  
13 the audio instructions to generate audio wave data, and one or more audio wave  
14 data consumers configured to process the audio wave data.  
15

16       **58.**    An audio generation system as recited in claim 49, wherein the  
17 audio rendition manager comprises:

18       a synthesizer component configured to processes the audio instructions to  
19 generate audio wave data;

20       one or more audio wave data consumers configured to process the audio  
21 wave data; and

22       a software component that defines logical buses corresponding respectively  
23 to the one or more audio wave data consumers, the software component  
24 configured to receive the audio wave data at the defined logical buses, and route  
25

1 audio wave data that is received at a particular logical bus to an audio wave data  
2 consumer corresponding to the particular logical bus.

3  
4 **59.** An audio generation system as recited in claim 49, wherein the  
5 audio rendition manager comprises:

6 a synthesizer component having multiple channel groups, each channel  
7 group having a plurality of synthesizer channels configured to process the audio  
8 instructions to generate audio wave data;

9 a mapping component having mapping channels corresponding to the  
10 plurality of synthesizer channels, the mapping component configured to designate  
11 the synthesizer channels that receive the audio instructions via the respective  
12 mapping channels;

13 one or more audio wave data consumers configured to process the audio  
14 wave data; and

15 a software component that defines logical buses corresponding respectively  
16 to the one or more audio wave data consumers, the software component  
17 configured to receive the audio wave data at the defined logical buses, and route  
18 audio wave data that is received at a particular logical bus to the audio wave data  
19 consumer corresponding to the particular logical bus.

20  
21 **60.** An audio generation system as recited in claim 49, wherein the  
22 audio rendition manager is a component object configured to provided processing  
23 components to process the audio instructions, the audio rendition manager having  
24 processing components comprising:

25



1 a synthesizer component object having multiple channel groups, each  
2 channel group having a plurality of synthesizer channels configured to process the  
3 audio instructions to generate audio wave data;

4 a mapping component object having mapping channels corresponding to  
5 the plurality of synthesizer channels, the mapping component object configured to  
6 designate the synthesizer channels that receive the audio instructions via the  
7 respective mapping channels;

8 one or more audio buffer component objects configured to process the  
9 audio wave data; and

10 a multi-bus component object that defines logical buses corresponding  
11 respectively to the one or more audio buffer component objects, the multi-bus  
12 component object configured to receive the audio wave data at the defined logical  
13 buses, and route audio wave data that is received at a particular logical bus to the  
14 audio buffer component object corresponding to the particular logical bus.

15  
16 **61.** An audio rendition manager, comprising:

17 a synthesizer component having one or more channel groups, each channel  
18 group having a plurality of synthesizer channels configured to receive audio  
19 instructions and produce one or more streams of audio wave data from the  
20 received audio instructions; and

21 a plurality of audio buffers that receive one or more of the streams of audio  
22 wave data.  
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1           **62.** An audio rendition manager as recited in claim 61, further  
2 comprising a second synthesizer component having one or more channel groups,  
3 each channel group having a plurality of synthesizer channels configured to  
4 receive the audio instructions and produce the one or more streams of audio wave  
5 data from the received audio instructions.

6  
7           **63.** An audio rendition manager as recited in claim 61, further  
8 comprising a mapping component configured to receive the audio instructions  
9 from one or more sources and route the audio instructions to the synthesizer  
10 channels in accordance with audio instruction channel designations.

11  
12           **64.** An audio rendition manager as recited in claim 61, further  
13 comprising:

14           a second synthesizer component having one or more channel groups, each  
15 channel group having a plurality of synthesizer channels configured to receive the  
16 audio instructions and produce the one or more streams of audio wave data from  
17 the received audio instructions; and

18           a mapping component configured to receive the audio instructions from one  
19 or more sources and route the audio instructions to the synthesizer channels in the  
20 synthesizer component and in the second synthesizer component.  
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1           **65.**   An audio rendition manager as recited in claim 61, further  
2 comprising a mapping component having mapping channels corresponding to the  
3 plurality of synthesizer channels, the mapping component configured to receive  
4 the audio instructions from one or more sources, designate the synthesizer  
5 channels that receive the audio instructions via the respective mapping channels,  
6 and route the audio instructions to the synthesizer channels.

7  
8           **66.**   An audio rendition manager as recited in claim 61, further  
9 comprising a multi-bus component that defines logical buses corresponding  
10 respectively to the plurality of audio buffers, the multi-bus component configured  
11 to receive the one or more streams of audio wave data at the defined logical buses  
12 and route one or more of the streams of audio wave data received at a particular  
13 logical bus to the audio buffer corresponding to the particular logical bus.

1       **67.** An audio rendition manager as recited in claim 61, further  
2 comprising:

3       a mapping component having mapping channels corresponding to the  
4 plurality of synthesizer channels, the mapping component configured to receive  
5 the audio instructions from one or more sources, designate the synthesizer  
6 channels that receive the audio instructions via the respective mapping channels,  
7 and route the audio instructions to the synthesizer channels; and

8       a multi-bus component that defines logical buses corresponding  
9 respectively to the plurality of audio buffers, the multi-bus component configured  
10 to receive the one or more streams of audio wave data at the defined logical buses  
11 and route one or more of the streams of audio wave data received at a particular  
12 logical bus to the audio buffer corresponding to the particular logical bus.

13  
14       **68.** An audio rendition manager as recited in claim 61, further  
15 comprising a performance manager that receives audio content from one or more  
16 sources, the performance manager configured to instantiate an audio content  
17 component for each source of audio content, each audio content component  
18 generating event instructions from the received audio content, and wherein the  
19 performance manager is configured process the event instructions to produce the  
20 audio instructions.

1           69. An audio rendition manager as recited in claim 61, further  
2 comprising:

3           a performance manager that receives audio content from one or more  
4 sources, the performance manager configured to instantiate an audio content  
5 component for each source of audio content, each audio content component  
6 generating event instructions from the received audio content, and wherein the  
7 performance manager is configured process the event instructions to produce the  
8 audio instructions; and

9           a mapping component having mapping channels corresponding to the  
10 plurality of synthesizer channels, the mapping component configured to receive  
11 the audio instructions from the performance manager, designate the synthesizer  
12 channels that receive the audio instructions via the respective mapping channels,  
13 and route the audio instructions to the synthesizer channels.